MARSHALL STAR

Marshall Space Flight Center **Dec. 16, 1999**

"We bring people to space — We bring space to people"

Director's Corner

A new century awaits

What an extraordinary point in history this is. You are holding the last edition of the Marshall Star in the 20th century. When the next issue of the Marshall Star hits your mailbox, we will be in a new millennium, one in which humanity will live and work in space.

People will be able to choose whether or not to live on Earth or move to another place. Opportunities undreamed of will become reality in ways we can only guess about now. Consider what has happened in the last 100 years and consider the rate at which technology is impacting our lives. We truly live in exciting times, and we at Marshall have a wonderful opportunity to "Create the Future."

In this past year, we celebrated the 30th anniversary of the landing on the Moon. This coming year, we will celebrate the 40th anniversary of the founding of Marshall Space Flight Center. We certainly can be very proud of Marshall's heritage from the Redstone rocket to Apollo's Saturn V to Skylab to HEAO to Shuttle to Hubble to Chandra.

As we launch into the new century, however, we have little time to dwell on the past because we have a large responsibility to lead the technology development that will enable the dreams we think about to become a reality.

We are challenged to lead the way in advanced space transportation systems that will open the door to space travel for more than just our heroic astronauts.

We have the privilege of leading the way in microgravity research and large optics manufacturing technology. We also will continue to play important roles in the assembly and operations of the International Space Station and Space and Earth science enterprise initiatives.

I am very thankful to be at Marshall and to be working with each of you. You are terrific!

I look forward to seeing you in the new millennium as we create the future of space operations and continue to improve the quality of life for our citizens on Earth.

I wish all of you a safe holiday season.

— Art Stephenson
Marshall Center Director

"Safety Happens"
— Safety slogan submitted by
Kevin Takada, ED42

Photo by Danny Reeves, NASA/Marshall Space Flight Center

'Tis the Season

Center Director Art Stephenson opened Wednesday's holiday celebration with a tree lighting ceremony at Bldg. 4200. The tree lighting preceded the re-opening of the NASA Exchange Space Shop and the holiday reception. See more photos on page 6.

The end of a star: Chandra catches X-ray glow from supernova

Through a combination of serendipity and skill, scientists have used the Marshall-managed Chandra X-ray Observatory to capture a rare glimpse of X-radiation from the early phases of a supernova, one of the most violent events in nature.

Although optical astronomers have observed more than 1,000 supernovae, the brief, early X-ray glow from the explosions has been detected in fewer than a dozen cases.

The Chandra observations were made under the direction of a team of scientists from the Massachusetts Institute of Technology (MIT) in Cambridge, Mass., led by Walter Lewin and his graduate student, Derek Fox.

*See **Chandra** on page 2*

Mulville named NASA's associate deputy administrator

NASA Administrator Daniel S. Goldin selected NASA's Chief Engineer, Dr. Daniel R. Mulville, as the space agency's associate deputy administrator, effective Jan. 1. He replaces Gen. John R. Dailey, who is leaving to head the National Air and Space Museum.

As associate deputy administrator, Mulville will plan, direct and manage the agency's daily operations and reinvention activities.

"NASA's associate deputy administrator is my most senior adviser on Agency operations, and I am very pleased that Dan Mulville has agreed to accept this position," Goldin said. "Dan has done an outstanding job over the past four years as NASA's chief engineer, and I look forward to working with him in his new position."

As the chief engineer since 1995, Mulville has been responsible for overall review of the technical readiness and execution of all NASA programs, ensuring that development efforts and mission operations of the agency are conducted on a sound engineering basis.

Prior to Mulville's appointment as chief engineer, he was director of Engineering and Quality Management Division in the Office of Safety and Mission Assurance, responsible for development of NASA's engineering and quality assurance standards for design and development of spacecraft and aeronautics systems.

Chandra

Continued from page 1

When combined with simultaneous observations by radio and optical telescopes, the X-ray observations give astronomers deeper insight into the last days in the life of a massive star. These events are responsible for the production and dispersal of carbon, oxygen, iron and other heavy elements found on Earth that are essential for life.

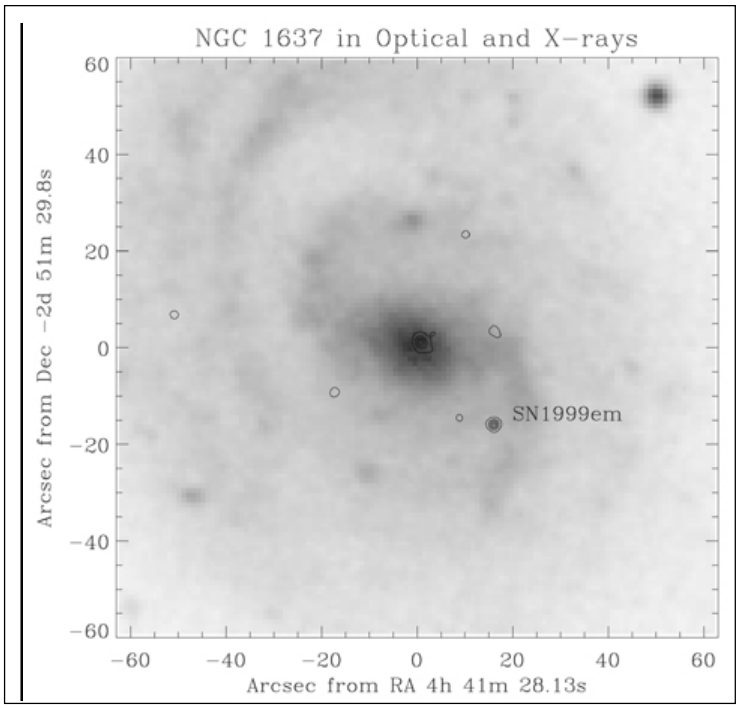
Chandra observed an X-ray glow from SN1999em with the total power of 50,000 suns. Ten days later it observed the supernova for another nine hours, and found the X-rays had faded to half their previous intensity. The optical luminosity, which had the brightness of 200 million suns, had faded somewhat less. No radio emission was detected at any time.

With this information, the MIT group and their colleagues already are piecing together a picture of the catastrophic explosion.

Observations by optical astronomers showed that SN1999em was a Type II supernova produced by the collapse of the core of a star 10 or more times as massive as the Sun. The intense heat generated in the collapse produces a cataclysmic rebound that sends high-speed debris flying outward at speeds in excess of 20 million mph.

The debris crashes into matter shed by the former star before the explosion. This awesome collision generates shock waves that heat the debris to 3 million degrees. The X-ray glow from this hot gas was detected by Chandra and gives astrophysicists a better understanding of the dynamics of the explosion, as well as the behavior of the doomed star in the years before the explosion.

"The combination of X-ray detection and radio non-detection is unusual, but may have less to do with the supernova and more to do with the great sensitivity of Chandra," said Roger Chevalier of the University of Virginia in Charlottesville. Chevalier said the combined observations indicate that SN1999em shed a relatively small amount of matter before it exploded, compared to other supernovae observed in X-rays. The Chandra observation is important because it may represent a more common type of supernova.



X-ray: NASA/CXC/SAO; Optical: Palomar Observatory Digital Sky Survey

In late October 1999, supernova SN1299em was detected in NGC 1637, a spiral galaxy 25 million light years from Earth. Chandra observed the supernova twice soon after the explosion. X-rays, shown by contours overlaid on an optical mage, were detected from 3 million degree gas produced by the supernova. An X-ray source in the center of the galaxy, which may be due to a supermassive black hole, was also detected.

The Chandra observation also provides an inside look at the hectic, exciting world of the international "quick response" network that scientists have set up to track and investigate supernovae.

The Chandra observation was taken with the Advanced CCD Imaging Spectrometer on Nov. 1 and 2, and 11 and 12 in two separate observations that lasted approximately nine hours each.

To follow Chandra's progress, visit the Chandra site at:
http://chandra.nasa.gov
and http://chandra.harvard.edu

Marshall contractor tells of safety lesson learned

by Connie Witt

On Nov. 20, my family was settled in to watch the Alabama/Auburn football game. I turned on the heat just to get the chill out of the house since my 10-month-old grandson and daughter were there.

The heat had been on about 30-40 minutes when we heard a loud beeping noise, three beeps to be exact, that continued repeating itself. The noise was from the carbon monoxide detector we had purchased three days earlier. It was still on the dining room table. Thank goodness we had put batteries in it.

Photo by Emmett Given, NASA/Marshall Space Flight Center

Connie Witt relates her personal experience during a safety minute at the Advanced Space Transportation all-hands meeting Dec. 7.

When I picked up the detector, the instructions on the back stated that if you are hearing three beeps, leave the premises immediately and call 911.

We did just that. Within five minutes, the fire department arrived and tested our home for carbon monoxide. The fire fighters said the levels were so high, they felt we would have died within a few hours. They raised all the windows, examined our heating unit under the house and cut off the gas.

After an ambulance ride and a few hours of oxygen, we were able to return home. A new heating unit was installed the next day.

Daily I ask friends, family and co-workers if they have gas heat or gas logs to please spend $19.95 for a detector to make their home a safer place. Do not take for granted that because your unit has worked fine in the past, or you have it serviced regularly, that you are totally safe.

A heating company checked our unit Nov. 16. They put in a new filter and suggested we might want to get a carbon monoxide detector. The fire department said anyone who looked at the unit should have cut off the gas — the problem was that visible.

The emergency room staff said most carbon monoxide victims go straight to the morgue.

Safety at work is an act of wisdom. Safety at home is an act of love!

The writer, a contractor employed by ASRI, is a special events coordinator in the Employee and Organizational Development Department.

Message from the NASA administrator

Goldin 'proud' of NASA's successes over past year

I wanted to take this opportunity to let you know how proud I am of the NASA family. Thanks to all of you, we have hadan incredible string of successes this year. Since last October, we've launched 13 missions, with 10 successes.

The list of accomplishments is impressive: Deep Space One, SWAS, Stardust, LandSat 7, Quikscat, FUSE, the first Space Station assembly mission, and Chandra, just to name a few.

Although I know I shouldn't single out specific groups because the success of any one mission depends on the entire NASA team, I do want to point out the extraordinary efforts of two groups.

First, I would like to commend the Shuttle team for its commitment to making safety our number one priority. The Shuttle team is absolutely right in its decision to examine, re-examine and re-examine again until we are confident that the Space Shuttle is as safe as possible. Our astronauts' lives depend on the diligence of the Shuttle workforce. We must be driven by safety, not schedule.

Second, the Mars teams have demonstrated the true meaning of character and the pioneering spirit of exploration. The Mars program had two spectacular successes under its belt with the Mars Global Surveyor and the Mars Pathfinder. But what makes this agency strong and vital is not how we react to success, but how we learn from failure. The Mars Polar Lander team was asked to perform the most difficult task in the history of Mars exploration — landing on the red planet's south pole. The odds are staggering: three different countries have tried to go to Mars 32 separate times, and only 11 missions have succeeded.

The American people are behind you. They know how difficult, and how important, it is to explore. They know that risk, failure and setbacks are part of that journey. A "USA Today" poll taken on Dec. 6 showed an overwhelming 72 percent of respondents want us to continue our Mars exploration program.

President Bill Clinton and Rep. Jim Sensenbrenner, chairman of the House Science Committee, expressed support for the Mars program and the "faster, better, cheaper" philosophies during separate press conferences this past week.

Sensenbrenner plans to visit the Jet Propulsion Laboratory in Pasadena, Calif., next week to talk with employees.

*See **Goldin** on page 7*

Protective Services provides holiday security tips

With the holiday season approaching, the anticipation of parties with family, friends, co-workers and neighbors, as well as the hustle and bustle of shopping, can blind an individual's protective senses.

Marshall's Protective Services Department wants everyone to experience a safe, secure and enjoyable holiday season. Remember, "An ounce of prevention is a pound of cure."

Please take time to review these holiday security tips.

Holiday Shopping Tips

- Try to avoid shopping alone.
- Never expose large sums of cash or valuables at any time while shopping.
- Payment with cash, except for small purchases, should be avoided.
- Do not wear expensive jewelry, and take care to dress in a modest, inexpensive outfit that will call minimum attention.
- Snatch and grab is a common method of theft during the holiday season. Individuals should keep packages close to their sides.
- Handbags should be worn with the strap over the neck or shoulder and the handbag held close to the body.
- Try to avoid making frequent trips to the car to deposit packages.
- Arrange shopping itinerary so that the most expensive items are acquired last.
- If shopping alone, go to a mall information desk and request a security escort.

Banks/Credit Unions

- When withdrawing money, ask the teller to count out the withdrawal behind the counter, out of public view.
- Ask for the money to be placed in a bank envelope before being passed across the bank counter.
- Immediately place the money in a pocket or handbag.
- Do not count money in public view.
- If confronted by a robber, do not resist. Notify police of the incident.

Automated Teller Machines (ATM)

- The best protection is to do banking during normal daylight hours.
- If banking must be done at night, try not to go alone.
- Be cautious; observe surroundings before exiting a vehicle.
- Have the ATM card ready so fumbling for it does not waste time.
- Conceal PIN# from public view.
- Complete the transaction and quickly put money and bankcard into a pocket or handbag.
- It is very important to make sure no one is following when leaving in a car — robbers have been known to follow patrons and ambush them when they exit their vehicle.

Parking

- Choose a parking area with care.
- Park as close to the building as possible or select a parking spot near the main flow of traffic. The end row is ideal.
- Park in well lit areas, preferably under a parking lamp or near a light source.
- Never leave a child or animal in an unattended vehicle.
- Valuables should not be left in plain view in a car. Store parcels in the trunk, not in the back seat.
- Know the car's location.
- Take a cell phone in case of an emergency.
- Maintain awareness while walking through a parking lot.
- Be wary of strangers. Never accept their help should a vehicle fail.
- Glance inside a car's front and rear seats before getting in.
- Lock doors immediately upon entry.

Child Safety

- Know where children are at all times.
- Keep in mind, malls are the perfect place to abduct a child. Crowds ensure cover for a kidnapper.
- Do not leave children unattended in stores, arcades, theaters or restrooms. Child molesters wait in public restrooms for children who enter alone.

Holiday Home Security

- Lock doors at home, even during the day.
- Never open the door automatically when someone knocks. Always require a caller to identify him or herself.
- Be sure the deadbolt is engaged and utilize a door viewer for positive identification.
- Use outdoor lights at night. Operating a 100-watt light bulb for eight hours costs less than 5 cents.
- When traveling, ask a neighbor to collect mail and/or newspaper.
- Give an appearance that your home is occupied. Use a timer for lights to come on at different intervals.
- If your home is going to be unattended, use curtains or drapes to conceal packages left under a Christmas tree.

Holiday Office Security

- Never leave valuables such as gifts, money or jewelry in plain view or in an unsecured desk.
- Do not "advertise" the fact that gifts are being stored in an office during the holidays.
- Holiday gifts should not be left unattended in an office. After gifts are exchanged, promptly take gifts home.
- Charitable collections can be an easy target for theft. Reduce this opportunity by delegating to a co-worker the responsibility of securing contributions in a locked desk or cabinet at the close of business each day.

Holiday Drinking

- Statistics show there is a dramatic increase in alcohol-related driving incidents during the holiday season.
- Don't drink and drive — use designated drivers or a taxicab.
- **Please buckle-up for safety!**

The next "Marshall Star" will be published Jan. 6, 2000.

Leadership Award

Marshall Center Director Art Stephenson, right, presents Associate Director Sid Saucier, center, with the Space Flight Awareness Leadership Award. Astronaut George Zamka, left, attended the ceremony.

Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Preparing for Y2K

Employees urged to back up files, check virus files

As Marshall prepares to transition to the Year 2000 (Y2K), there are several steps that all Marshall employees and onsite contractors should plan to take before leaving work the last day of 1999, and when returning to work after New Year's Day.

All important files you have created locally on your workstation should be compressed and backed up to external media (floppy diskettes, ZIP drives, Jaz Drives, CDs, file servers, etc.).

The latest virus signature files for your anti-virus software should be downloaded and installed on your workstation.

When returning to work after the New Year's holiday, check that your workstation has rolled over to the appropriate January 2000 date. Contact the Help Desk at 256-544-HELP if you have problems.

Since we can expect that the millennium rollover also will cause a significantly higher incidence of new virus attacks than usual, you must be especially diligent in keeping your anti-virus software signature files up to date. It is possible that new signature files could be released daily, as compared to about once per week currently.

You also should be especially careful of any attachments you receive. The best practice is to detach attachments, virus test them and then open them with the appropriate application. Launching them immediately as attachments from an E-mail message is to be avoided at all times if there is any possibility that the files may be infected. Remember that even people you work with all the time might accidentally transmit new strains of computer viruses if they are not equally careful.

Marshall doesn't anticipate any problems transitioning into the Year 2000. Much work has been done to alleviate potential problems. If a situation arises that keeps Marshall from opening on Jan. 3, please call (256) 544-HELP for status. The local media also would have information regarding any Center closings.

Marshall has worked hard to ensure that little or no problems will occur related to the Year 2000 rollover. During the rollover weekend, selected employees will be at Marshall checking various computer systems. This check will verify system performance before employees return to work Jan. 3. The employees working the rollover weekend need you help. Unless you are called to work a Y2K problem or are needed to support an essential task, please stay at home and enjoy the holiday weekend.

Countdown to Y2K
15 Days Left

In case of concerns with returning to work on Jan. 3 related to Y2k, any messaged will be posted at (256) 544-HELP. Information also will be relayed by the local news stations.

Courtesy of Information Services Department

NASA Exchange Space Shop reopens, Center celebrates holidays

Marshall NASA Exchange reopened Wednesday with a ribbon cutting ceremony.

The ribbon cutting started the holiday festivities at Bldg. 4752. Center Director Art Stephenson and his wife Loa were on hand to cut the ribbon and browse the shop, which had been closed for approximately six week for renovations.

Following the ribbon cutting ceremony, employees enjoyed the Center's holiday reception.

The day's celebration began with a tree lighting ceremony on the lawn of Bldg. 4200.

Photos by Danny Reeves, NASA/Marshall Space Flight Center

Children from Marshall's Child Development Center entertained the crowd gathered for the holiday reception.

Center Director Art Stephenson, center, and wife Loa, left, help Santa reopen the NASA Exchange Space Shop. The shop was closed for renovation.

The Stephensons make the first purchase at the new Space Shop.

Happy Holidays to the Marshall family

Photo by Dennis Olive, NASA/Marshall Space Flight Center

Flag football champs

The Silver Bullets captured first place in the MARS flag football intramural season. Front row from left are Terri Schmitt, Leeann Smith, Carolyn Plank and Janet Geist. Back row from left are Joyce Meier, Shelley Sanders, Louie Clayton, Julie Christel and Cheryl Smith. Tami Lanier, Debbie Scrivner and Jamie Miernick are not pictured.

Shuttle mission STS-103 counting down to Thursday launch to repair Hubble

NASA began the countdown for launch of Space Shuttle Discovery on mission STS-103 Wednesday at 1:30 a.m. EST at the T-43 hour mark.

The countdown included 24 hours and 48 minutes of built-in hold time leading to a liftoff Thursday. The launch window opens at 9:18 p.m. and extends for 41 minutes.

This is the third and final mission of 1999. Mission STS-103 marks the 27th flight of orbiter Discovery and the 96th flight overall in Space Shuttle history. STS-103 is slated to last 9 days, 21 hours. Discovery returns to Kennedy's Shuttle Landing Facility at about 6:56 p.m. EST on Sunday, Dec. 26.

Mission STS-103 is designed to replace worn parts on the 9-year-old Hubble Space Telescope and to upgrade other systems on the space observatory. All six gyroscopes that provide Hubble's pointing capability will be replaced on orbit along withother equipment like a guidance sensor and main computer. Four spacewalks are planned to support this flight.

Wiring repairs and replacement of a dented liquid hydrogen recirculation line in Discovery's engine compartment was required in addition to standard processing.

The STS-103 crew consists of: Commander Curt Brown, Pilot Scott Kelly, Mission Specialists Steve Smith, Michael Foale, John Grunsfeld, Claude Nicollier (ESA) and Jean-Francois Clervoy (ESA).

Goldin

Continued from page 3

What we cannot do is return to a time when it took 10 years and 1 billion dollars to build a spacecraft. We all remember when one such spacecraft blew up — the Mars Observer — and we had no other Mars missions on the books.

We also cannot ask our scientists and engineers to do what others only dream about doing — take incredible risk, try new ideas and technologies, then point fingers and play the blame game when failures occur. As I said when we started "faster-better-cheaper," if we launched 10 missions and lost two or three, we would still be wildly successful.

What we can do, however, is learn from our mistakes. We have to find out why two Mars missions under "faster, better, cheaper" were incredibly successful, and why two others failed.

I am in the process of appointing a blue ribbon commission to look into the failure, to make recommendations and to help us build a better, stronger program.

I know it is never easy to have others looking over your shoulder, second guessing, analyzing and criticizing. But when you work for the federal government, you are held to a higher standard. We owe it to the American taxpayers to let them know what went wrong and how we intend to fix our problems.

NASA is the boldest, most open agency in the federal government. The whole world watches what we do. We've wowed them before, and we will do it again.

—Daniel S. Goldin
NASA Administrator

Key Personnel Announcement

Scott D. Croomes has been named manager of Marshall's Flight Systems Department in the Flight Projects Directorate.

Croomes recently served as manager of the Environmental Control and Life Support Systems Group in the Flight Projects Directorate where he directed the design, development, test, verification and delivery of water reclamation and oxygen generation systems for the International Space Station.

Scott Croomes

He joined Marshall in 1976 as a Cooperative Education Program participant. After gaining valuable experience in the conceptual design of the Space Station, he accepted a position in the Space Station Program Office at the Johnson Space Center in Houston.

He later returned to Marshall, holding a variety of managerial positions, including chief engineer of Space Station Project Engineering; manager of the Space Station Development Office; and manager of the Station Life Support Projects Office.

In 1995, Croomes served on detail to the staff of the deputy associate administrator for Space Flight in the Space Station Program Directorate at NASA Headquarters, where he was instrumental in securing appropriations for the construction of a back-up propulsion module for the Space Station.

Croomes holds a bachelor's degree in mechanical engineering from Auburn University in Auburn, Ala., and has completed graduate studies in mechanical engineering at Auburn and the University of Alabama in Huntsville.

Marshall technologies highlighted in 'Spinoff'

New technologies for purifying water, simulating virtual reality and determining the effectiveness of thermal insulation blankets seem to have little in common. Yet all three technologies originated at Marshall, and are among the technological breakthroughs featured in a new publication.

"Spinoff," published annually by NASA, contains success stories of space program technology adapted for use in the private sector. The 1999 edition, featuring 40 NASA technologies transferred to American businesses, is now available.

Beginning the third week in December, Spinoff 1999 can be viewed online at:

http://www.sti.nasa.gov/tto/online.html

Through licensing, U.S. patents owned by NASA are made available to industry in return for royalties paid to the inventors and their NASA Centers. Since NASA was founded in 1958, technologies developed for the space program have enabled American industry to introduce more than 1,200 new or improved products, including items such as cordless tools, motion simulators and smoke detectors.

Lack of solar wind allows NASA scientists to study solar particles

From May 10-12, the solar wind that blows constantly from the Sun virtually disappeared — the most drastic and longest-lasting decrease ever observed.

Dropping to a fraction of its normal density and to half its normal speed, the solar wind died down enough to allow physicists to observe particles flowing directly from the Sun's corona to Earth. This severe change in the solar wind also changed the shape of Earth's magnetic field and produced an unusual auroral display at the North Pole.

"This event provides a window to see the Sun's corona directly," said Dr. Keith Ogilvie, project scientist for NASA's Wind spacecraft and a space physicist at NASA's Goddard Space Flight Center in Greenbelt, Md.

American Red Cross holiday blood drive is Friday

This the season for giving! Come join the American Red Cross on Friday and give the most precious gift of all — the gift of life!

Blood supplies are very low. The American Red Cross and Huntsville Hospital need at least 75 donors at Marshall to participate this holiday season.

Employees are encouraged to give blood at the North Loop of Bldg. 4203, where the mulch truck usually parks. Registration will be in the lobby, in front of the museum. Employees also may give blood at the Madison County Chapter of the American Red Cross at 1101 Washington St. in Huntsville.

The schedule is as follows: A-B — 8 a.m.; C-F — 8:30 a.m.; G-H — 9 a.m.; I-L — 9:30 a.m.; M-O — 10 a.m.; P-S — 10:30 a.m.; T-Z — 11 a.m.

For employees unable to make assigned appointment times, the Red Cross will be available until 1:30 p.m.

Marshall employees donating blood without compensation will be authorized four hours of excused absence. The hours are to be taken on the day the blood is donated. Contractors should comply with the policy of their respective companies.

GHCC wins award for urban heat island bookmark

Several people from the Global Hydrology and Climate Center (GHCC) have been awarded the 1999 Office of Earth Science Award for Outstanding Earth Science Education Product for leadership in development of an urban heat island bookmark.

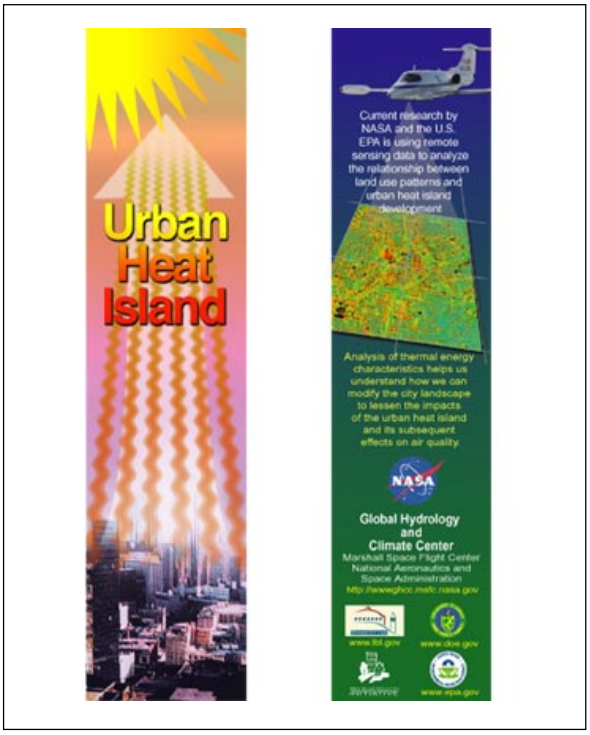
NASA Headquarters will reproduce the bookmark for wide distribution to students, educational institutions and others.

The award was presented to Dr. Dale Quattrochi and Dr. Jeff Luvall from the Earth Science Department, Maury Estes from the Universities Space Research Association and Greg Cox from University of Alabama at Huntsville, both located at the Hydrology Center.

Dan Holland, a contractor employed by Scientific and Commercial Systems Corp. in Marshall's Graphics Department, also received an award for his assistance in computer graphics production of the bookmark.

The bookmark, which depicts the aircraft collection of thermal infrared remote sensing data over an urban area for analysis of the urban heat island effect, was judged by an independent panel of scientists and educators as an exceptional resource furthering NASA's Earth science education goals.

The awards were presented at the NASA Earth Science Education Forum in November in Austin, Texas. The forum brought together representatives from all NASA Earth science education projects.



Marshall Star update

Son of Marshall employee named UAB's first Rhodes Scholar

by Debra Valine

Nearly four years ago, Neelaksh "Neel" Varshney, son of Marshall employee Shashi Prabha Varshney, received a scholarship from the NASA College Scholarship Fund.

In 1997, he received the Marshall Management Association Merit Scholarship.

Apparently it was money well invested. On Dec. 11, he was named the University of Alabama at Birmingham's (UAB) first-ever Rhodes Scholar.

"It was a surprise for all of us that I was selected," Varshney said. "I had the interview, which was part of the selection process. Then the panel deliberated for 2 1/2 hours before they called 15 of us into the office. They read off four names. It was a very emotional moment."


Neel Varshney

Varshney, 21, was one of 32 U.S. students chosen to receive the Cecil Rhodes Scholarship. He will study at The University of Oxford in England for two years at no cost. He was chosen based on academic achievement, integrity, unselfishness, potential leadership ability and physical vigor. In all, 935 U.S. students applied. Ninety students worldwide received the scholarship.

The electrical engineering major will graduate from UAB in June before heading to Oxford, where he will study neuroscience. After Oxford, he plans to earn medical and doctorate degrees in neuroscience. He wants to study the causes of Alzheimer's Disease and the processes involved in learning and remembering.

Varshney graduated at the top of his Grissom High School class in 1996. He received a score of 1500 on the SAT and 32 on the ACT.

"From the very beginning he has been a perfectionist," said his mother, Shashi Varshney, who works in the Office of the Chief Financial Officer. " He wants to do his very best at everything he does. He was always a good student, but we never expected that one day he would be a Rhodes Scholar."

Varshney's father, Anil Kumar Varshney, who works for Teledyne Brown Engineering, credits the Alabama school system — and his wife — with their son's successes.

"Neelaksh is a full-blooded Alabamian," Anil Varshney said. "He was born, reared and has thus far obtained his entire education in Alabama. His teachers and other UAB staff members have been providing an effective, challenging and encouraging environment to help him continue accomplishing important milestones in his life. His selection as a Rhodes Scholar reflects highly on Alabama in general and its education system in particular.

"As a father, I will admit that the one single individual who is responsible for most of Neel's accomplishments is his mother. She has consistently shown him what else he can do and she motivated him to go that extra 10 percent."

The writer, a contractor employed by ASRI, is the Marshall Star editor.

Marshall retiree runs for his life

Edwards logs 37,000 miles on way to goal of 50,000

by Debra Valine

Running is not for everyone, but it has become a way of life for Marshall retiree Grady Edwards, 70.

Edwards has run in 42 marathons since his near-fatal heart attack at 39. Since that time he has run more than 37,000 miles.

Courtesy photo

Grady Edwards took up running following a near-fatal heart attack in 1969.

His goal is to record 50,000 miles — twice around the world — by the time he reaches 80.

"I started at Marshall as a program analyst in the Space Sciences Lab in 1965. And I ended up in the Institutional Control Branch on the 7th floor of Bldg. 4200," said Edwards, who retired in 1990 after 39 years of civil service. His NASA career began at the Michoud Assembly Facility in New Orleans in 1962. He moved to Huntsville in 1965 with his wife Martha and their two boys.

Edwards was advised by a civilian NASA physician, Dr. Tulio Figarola, to begin an exercise program. Edwards started walking laps around a track, but became bored. He added running to his program.

Edwards joined the Huntsville Track Club, and started keeping track of his miles in 1970. He runs 5 miles about five days a week.

Though he has never won a race, his best time for the marathon, 3 hours, 40 minutes, was recorded in one of two trips to the Honolulu Marathon. "I run mostly local races in the Southeast," Edwards said. "I've run in the Smoky Mountains Marathon in Tennessee, Callaway Gardens Marathon in Georgia and other races in Tennessee and Alabama."

Edwards also carried the Olympic

Grady Edwards

torch for half a mile when it passed through Huntsville on its way to the Atlanta games in 1996. In July, he carried a baton in the Pass the Torch relay held in conjunction with Marshall's Apollo 11 celebration.

"Running is not for everyone," Edwards said. But it has helped him to get in shape and lose weight since his heart attack, and keeps him in excellent health.

When he's not running, he works as a volunteer archaeologist with the State Archaeology Department in Moundville, he's writing a book about archaeology and he donates time to local charities such as Habitat for Humanity and CASA.

The writer, a contractor employed by ASRI, is the Marshall Star editor.

Antarctica's frozen slice of life offers clues to life elsewhere

Scientists have discovered a microbial world hidden deep beneath the frozen Antarctic ice that could help them learn more about how life can survive under extreme conditions on other planets or moons.

Their findings are featured in a research paper co-authored by Dr.Chris McKay, a planetary scientist at NASA Ames Research Center in Moffett Field, Calif., which was published in the Dec. 10 issue of Sciencemagazine.

Co-authored by a multi-disciplinary science team, the researchpaper entitled "Geomicro-biology of Subglacial Ice Above Lake Vostok, Antarctica," analyzes the ice above Lake Vostok, a huge freshwater lake buried deep below the East Antarctic ice sheet.

"Microbes within the liquid water habitat of Lake Vostok may shed light on the viability of life in similar harsh environments beyond Earth, such as in the frozen ocean subsurface on Jupiter's moon, Europa, "McKay said. Galileo spacecraft results imply that a subsurface ocean could exist on Europa.

The research team tested samples from the ice 3,590 meters below Vostok Station, and found diverse colonies of microbes. Scientists say this is significant because the lake has been isolated from the usual sources of atmospheric-derived energy, such as photosynthesis, for millions of years.

The research team included the paper's lead author, Dr. John Priscu, and others from the departments of Biology, Earth Science and Physics at Montana State University in Bozeman, Mont. Other researchers were from the department of Geology, the University of Alabama in Tuscaloosa, Ala., and the U.S. Geological Survey in Reston, Va.

New millennium program selects Earth observing concept

NASA will flight-test an instrument using new technologies to measure elements of Earth's atmosphere and to support space research aimed at reducing risks from severe weather.

This measurement concept, known as the Geostationary Imaging Fourier Transform Spectrometer, has been selected as the next Earth-observing mission under NASA's New Millennium Program.

The mission — known as "Earth Observing 3" — will test advanced technologies for measuring temperature, water vapor, wind and chemical composition with high resolution, in space and over time.

Such sophisticated measurements have the potential for revolutionary improvements in weather observation and prediction, by providing unique observations of the spectral properties of clouds and the transport of pollutants in the atmosphere.

"In 2003, this space flight demonstration will involve genuinely revolutionary measurement approaches that will have a major impact on Earth system science," said Dr. Ghassem Asrar, associate administrator for Earth Science at NASA Headquarters in Washington, D.C.

"The eventual incorporation of this technology on geostationary weather satellites would provide up-to-the-minute information, never before available, on active severe weather systems, such as hurricanes and tornados.

"These observations will help improve the accuracy of the current three-day weather forecasts and extend the duration of forecasts up to five days during the next decade," Asrar said.

Managed by NASA's Langley Research Center in Hampton, Va., the mission uses an advanced imaging spectrometer based on breakthrough technologies such as a large-area focal-plane array, new data-readout and signal-processing electronics, and passive thermal switching.

Today's geostationary satellites observe Earth, its atmosphere and oceans in only a few selected spectral bands. This new instrument will improve observational capabilities to several hundred spectral bands that will provide both additional and more detailed information.

NASA selected this concept from four finalist ideas culled from 24 proposals submitted in response to a NASA research announcement released in September 1997. The theme for the solicitation was to test innovative approaches for observing Earth's surface and atmosphere from positions outside low-Earth orbits, with an emphasis on advanced measurement concepts and technologies.

The selection process was carried out by NASA Headquarters, and included evaluations of each concept study by external peer reviewers. The total NASA cost of the mission, including contribution to launch, is expected to be approximately $105 million.

The first Earth-orbiting mission under the New Millennium Program, Earth Observing 1, is scheduled for launch in spring of 2000. Managed by NASA's Goddard Space Flight Center in Greenbelt, Md., that mission will demonstrate an advanced land-imager system and hyperspectral imaging technologies that may eventually replace the current measurement approach used by Landsat satellites.

Created in 1994, the New Millennium Program is designed to identify, develop and flight-validate advanced technologies that can lower costs and enable critical performance of future science missions in the 21st century. The program is managed by NASA's Jet Propulsion Laboratory in Pasadena, Calif., for NASA's Office of Earth Science and Office of Space Science in Washington, D.C.

Photo by Danny Reeves, NASA/Marshall Space Flight Center

Tennessee Valley CFC awards

Bruce Askins, Marshall's 1999 Combined Federal Campaign (CFC) chairman, left; Rosa Kilpatrick, Tereasa Washington, Lowell Newton and Melvin Scruggs received awards on behalf of the Marshall Center at the Tennessee Valley CFC awards ceremony held Dec. 8.

Employee Ads

Miscellaneous

★ Two 14K gold slides: August birthstone — peridot; December birthstone — blue topaz; $200 each. 830-4477
★ Raleigh, 12-speed bike, super course model, $150. 539-0263
★ Free-standing cast iron wood stove w/blowers, double doors, $125. 895-9196
★ Electric clothes dryer, almond, $95; 36"x80", 6-panel steel exterior door lock and knocker, $60. 881-6040
★ 35mm, 80-200mm Macro lens, Nikon mount, $40. 355-3586
★ Lowery electric organ, instruction tapes and music books included, $1,500. 971-6966
★ Truck tool box, fiberglass, over rail, extra deep, GMC, blue, $150. 837-7991
★ Golden Eye 007, Nintendo 64 games, $35 each. 830-0854
★ Sauder entertainment center, $75; coffee table, $50; solid wood desk, 6-drawer, laminated top, $30. 355-2161
★ Large sectional sofa, 4 piece w/recliner and queen size sleeper, $750 obo; maple coffee table, $35. 883-9875
★ PRE 1200S skis, 185 cm length, Salomon 547 bindings, $100. 539-5543
★ Sailboat, Classic Morgan 22, 1970, beam 8', draft 22", sleeps 4, $2,500. 883-4177
★ 1986 Glass-stream Regatta 192, 19.2' long, 140HP OMC (rebuilt); depth finder, CD player, $3,500. 353-5358
★ Camcorder, VHS-C, RCA, 22X lens, low light capability, less than year old, used twice, $250. 883-2757
★ Sears Santa's best suit: hat, beard, jacket, pants, boots, bells, $15. 539-6945
★ Labrador retriever puppies, AKC/OFA, champion lines, sire show dog-junior hunter, blacks, chocolates, satin, $500. 880-8174
★ Whirlpool washing machine, $25. 881-8580
★ RCA digital satellite dish and receiver, 18", Model DRD303RA, $50; Flexible Flyer bouncing rocking horse, $40. 533-5942
★ Two men's Nishiki bicycles, $120 for both. 350-7461
★ Bassett baby crib, adjustable w/drop down side, mattress, sheets and bumper pad, original owner, $150 obo. 881-8674
★ Early American couch, three cushions, multi-color, 88"x36", two gold lamps. 837-7999
★ Bedroom suite: headboard, dresser, chest, night stand, $400; golf clubs & bag, $40. 536-8951
★ Old albums, $2 each. 882-1097
★ Longaberger baskets collection, 50 percent off Bentley guide. 230-0068
★ Pent. II 400 MHZ Celeron complete system, 750; Quantium Fireball 3.2GB hard drive, $60. 851-0704
★ Maple Ethan Allen desk, 48.5Lx18.5Wx30.5W, & bookcase, 30Wx48H, combination, $400. 837-2992
★ Longaberger baskets; Dept. 56 Dickens, below green book; Cardioglider & Interactive exercise bikes, $50 ea. 881-1090

Vehicles

★ 1991 Izusu Rodeo, air, CD player, auto, V6 engine, $4,500. 518-9802
★ 1996 Chevrolet Cavalier, white ext., automatic, a/c, 77K miles, $6,500. 828-6545
★ 1990 Acura, V6 LS, loaded, 155K miles, new tires, tune-up, brakes, $8,000 obo. 734-1777 leave message
★ 1997 Jeep Wrangler, red w/black soft top, 6cyl., 5-speed, 4.0L, a/c, 75K miles, must sell. 544-1245/355-1353
★ 1993 Mustang LX hatchback, 89K miles, white/blue, sunroof, tint, rain guards, spoiler, $4,250 obo. 233-5788/219-6862
★ 1996 Mazda 626 LX, V6, 58K miles, white, spoiler, moon roof, recently detailed, $10,500. 574-5098 after 5:30 p.m.

Wanted

★ To buy or borrow, owner's manual for Smith-Corona PWP 90 word processor. 883-8571
★ Utility shed, will haul off. 539-4335
★ Inch Beanie baby, willing to pay $6. 498-2028

Found

★ Earring found in parking lot, Bldg. 4312. Call 544-4758 to identify
★ Would the lady who called about the silver ring found at Bldg. 4200, please call 544-4541

Free

★ Puppies, 8 golden retrievers, 4 mixed breed, ready to go Christmas week. 586-7130
★ Magic Chef refrigerator/freezer w/ice-maker, not running, you pick up. 533-3045/leave message

Center Announcements

☛ ***Engineering Systems Department Retirement Party —*** The Engineering Systems Department is hosting a retirement party at 9:30 a.m. Jan. 12 in Bldg. 4203, room 1201. Honorees include Gabriel R. Wallace, Glen D. Ritter, Robert G. Zagrodzky, James R. Bishop, and Sandra G. Henderson.

☛ ***Photo Lab Retirees —*** Photo Lab retirees will meet at 9:30 a.m. Jan. 4 at Shoney's at University Drive and Memorial Parkway. For more information, call Chuck Allen at 852-0917.

☛ ***Write in Plain English —*** The course WIPE — Write in Plain English — focuses on enhancing your ability to produce effective documents. Since the WIPE course is tailored, those registering should send a two-page work sample to CD20/Stephanie Elliott no later than two weeks prior to the course. The class will be held from 8:30 a.m.-4:30 p.m. Jan. 18-19 in Bldg. 4200, room G-21, and Feb. 23-24 at a location to be determined. Civil service employees should register via AdminSTAR. For more information, call Vanessa Suggs at 544-7527 or Stephanie Elliott at 544-7553.

☛ ***NASA Fellowship Program —*** Nomination paperwork for the NASA Administrator's Fellowship Program is due no later than Jan. 7. For eligibility and application requirements, access:
http://national-academies.org/osep/fo
or call Vanessa Suggs at 544-7527.

☛ ***Working with Marshall —*** The Technology Transfer Department's handbook, "Working with NASA Marshall Space Flight Center" is available online at:
www.nasasolutions.com
The booklet is designed to expedite the process of doing business with Marshall. There are answers to frequently asked questions, steps to initiate the process and an overview of the various ways to partner with Marshall.

☛ ***Smoke Stoppers —*** The next Smoke Stoppers class will begin Jan. 11. Orientation will be from 1-2 p.m. in Bldg. 4752. For more information, e-mail Patricia.Mirandy@msfc.nasa.gov or call 544-7570.

☛ ***MESA Meets —*** The Marshall Engineers and Scientists Association (MESA) will meet at 11:30 a.m. Thursday at Bldg. 4471, room C-105. Members are asked to bring a refreshment to share in the spirit of the holiday season.

MARSHALL STAR
Vol. 40/No. 16

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
http://www1.msfc.nasa.gov

The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Monday noon to the Marshall Internal Relations and Communications Department (CD40), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations
and Communications — Norman Brown
Editor — Debra Valine

U.S. Government Printing Office 1999-533-127-80091

BULK RATE
Postage & Fees PAID
NASA
Permit No. G-27